

PATENT

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Application No.: 09/403,894  
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1           19.   (Twice Amended) A method of manufacturing carbon fiber coils  
2 comprising:  
3           placing a solid catalyst within a reaction chamber;  
4           supplying stock gas and a catalytic gas to the reaction chamber;  
5           heating the reaction chamber to grow carbon fiber coils from the stock gas by a  
6 burner or a heating chamber in which a heated fluid flows.

1           22.   (Twice Amended) The method of claim 21 including setting the position  
2 of the solid catalyst and the velocity of the stock gas, wherein the ratio of the velocity of  
3 the stock gas to a distance between an outlet of the port and the solid catalyst is set in a  
4 range of 10 to 10000, wherein the velocity is expressed in centimeters per minute and the  
5 distance is expressed in centimeters.

1           26.   (Twice Amended) An apparatus for manufacturing carbon fiber coils  
2 from a stock gas, which is subjected to thermal decomposition to generate solid carbon,  
3 and a catalytic gas, which promotes thermal decomposition of the stock gas, the  
4 apparatus comprising:  
5           a reaction chamber, to which the stock gas and the catalytic gas are supplied  
6 through a port;  
7           a solid catalyst located within the reaction chamber; and  
8           a heating device for heating the reaction chamber to grow carbon fiber coils from  
9 the stock gas, wherein the heating device is a burner or a heating chamber, which is  
10 surrounding the reaction chamber and in which a heated fluid flows.

1           27.   (Twice Amended) The apparatus according to claim 26, wherein the solid  
2 catalyst faces an outlet of the port and is spaced from the outlet by a distance, and the  
3 stock gas is supplied to the reaction chamber at a certain velocity, wherein the ratio of the  
4 velocity of the stock gas to the distance is in a range of 10 to 10000, wherein the velocity  
5 is expressed in centimeters per minute and the distance is expressed in centimeters.

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1 33. (Cancelled)

1 34. (Cancelled)

1 37. (Amended) A method of manufacturing carbon fiber coils comprising:  
2 placing a solid catalyst within a reaction chamber, wherein the solid catalyst is  
3 spaced apart from an outlet of a gas supplying port of the reaction chamber at a  
4 predetermined distance;  
5 supplying a stock gas and a catalytic gas to the reaction chamber, wherein the  
6 stock gas is supplied through the gas supplying port at a predetermined velocity, wherein  
7 the ratio of the velocity to the distance is set in a range of 10 to 10000, wherein the  
8 velocity is expressed in centimeters per minute and the distance is expressed in  
9 centimeters;  
10 applying a DC voltage to the solid catalyst to negatively charge the solid catalyst;  
11 and heating the reaction chamber to a temperature in a range of 700 to 830 degrees  
12 Centigrade to grow carbon fiber coils from the stock gas using a heating device including  
13 a burner and a heating chamber, which is surrounding the reaction chamber and in which  
14 a heated fluid flows.

REMARKS

Upon entry of the foregoing amendments, claims 19-32 and 35-37 are pending in the present application. Claims 19, 26, and 37 have been amended to include the feature of claims 33 and 34.

Claims 19-25 and 35-37 stand rejected under 35 U.S.C. § 112, first and second paragraphs.

Claims 19-22 and 25-34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over UK Patent Application No. 2,244,230.

These rejections are respectfully traversed and reconsideration is respectfully requested.